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(22) International Filing Date: 18 December 1998 (18.12.98)

(30) Priority Data:
09/003,665 7 January 1998 (07.01.98) US

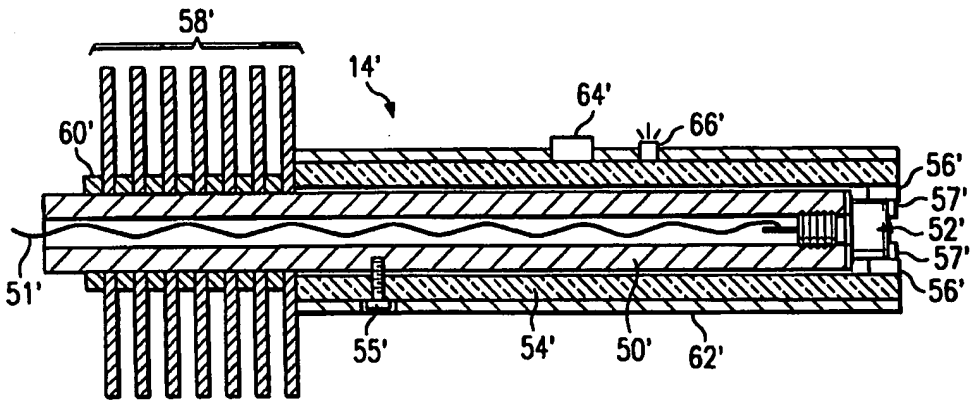
(71)(72) Applicant and Inventor: SEGAL, Kim, Robin [US/US]; 18902 White Water Lane, Dallas, TX 75287 (US).

(74) Agents: MCCOMBS, David, L. et al.; Haynes and Boone, L.L.P., 3100 NationsBank Plaza, 901 Main Street, Dallas, TX 75202-3789 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: DIODE LASER IRRADIATION AND ELECTROTHERAPY SYSTEM FOR BIOLOGICAL TISSUE STIMULATION



(57) Abstract

The present invention is an irradiation, and electrotherapy system for treating biological tissue of a subject without exposing the tissue to damaging effects. The system includes a manipulable wand (14') for contact with the tissue, a diode laser (52) disposed in the wand for irradiating the tissue with coherent optical energy, a metal sheath (62) for providing electrical stimulation to the tissue, and setting controls for operating the wand to achieve a rate of absorption, a conversion to heat in the irradiated tissue in a range between a minimum rate sufficient to elevate the average temperature of the irradiated tissue to a level above the basal body temperature of the subject, and a maximum rate which is less than the rate at which the irradiated tissue is converted into a collagenous substance.

United States Patent [19]

Hatje

[11] **Patent Number: 4,930,505**

[45] **Date of Patent: Jun. 5, 1990**

[54] **METHOD OF ENHANCING THE WELL-BEING OF A LIVING CREATURE**

[75] Inventor: **Guenther H. Hatje**, Hamburg, Fed. Rep. of Germany

[73] Assignee: **Helmut K. Pinsch GmbH & Co.**, Hamburg, Fed. Rep. of Germany

[21] Appl. No.: **105,608**

[22] Filed: **Oct. 5, 1987**

[30] **Foreign Application Priority Data**

Oct. 4, 1986 [EP] European Pat. Off. 86113792.5

[51] **Int. Cl.**[5] **A61N 5/00**

[52] **U.S. Cl.** **128/398**; 606/3

[58] **Field of Search** 128/395, 396, 397, 398, 128/303.1

[56] **References Cited**

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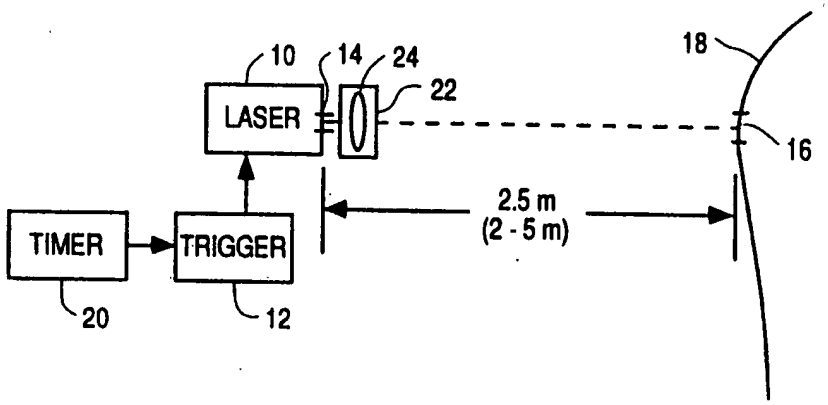
1102614	7/1984	U.S.S.R.	128/395
1242188	7/1986	U.S.S.R.	128/395
8606642	11/1986	World Int. Prop. O. .	

Primary Examiner—Edward M. Coven
Assistant Examiner—Mark J. Graham

[57] **ABSTRACT**

A method of enhancing the well-being of a living creature, wherein energy from a laser light-source bombards a target area on the skin or hide of the living creature, a short-pulsed laser light source is disposed remote from the target area and produces an elevated emergence energy density so that its radiation, for a short duration, applies a high output per unit area to the target area.

8 Claims, 2 Drawing Sheets



US005304207A

United States Patent [19]

Stromer

[11] Patent Number: 5,304,207

[45] Date of Patent: Apr. 19, 1994

[54] **ELECTROSTIMULATOR WITH LIGHT EMITTING DEVICE**

[76] Inventor: Merrill Stromer, 8924 N. 65th St., Paradise Valley, Ariz. 85253

[21] Appl. No.: 831,163

[22] Filed: Feb. 5, 1992

[51] Int. Cl.[5] A61N 1/00; A61N 1/18; A61N 1/40

[52] U.S. Cl. 607/3; 607/46; 607/88; 607/145

[58] Field of Search ..... 128/419 R, 419 S, 419 C, 128/783, 798, 800, 802, 395, 907, 421, 422, 362, 396, 420 R, 420 A, 786, 803, 632-633; 606/32, 42; 600/13, 14; 604/20; 273/84 ES; 361/232, 225; 33/233; 231/7; 607/46, 88, 90

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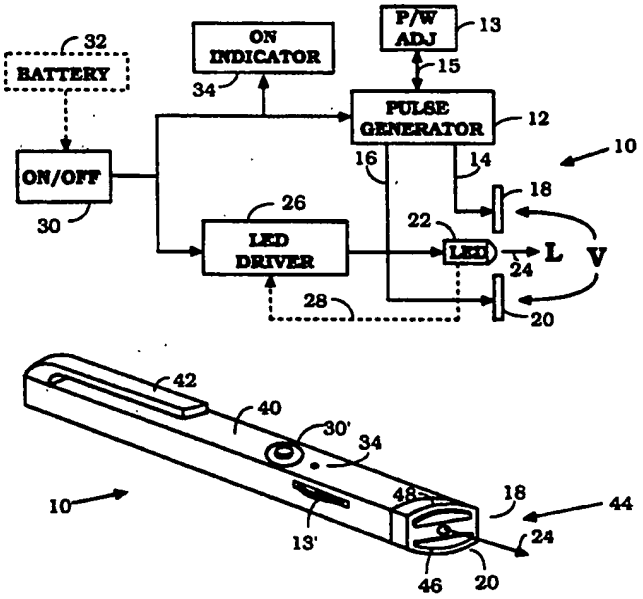
Primary Examiner—Richard J. Apley
Assistant Examiner—John P. Leubecker

[57] **ABSTRACT**

An improved electrostimulator apparatus, comprises first and second electrodes spaced-apart a predetermined distance, an electrical signal generator for providing pulses of predetermined width and repetition rate to the spaced-apart electrodes, and an LED providing a beam of light projecting between the spaced-apart electrodes toward the object intended to be electrostimulated. The electrodes have substantially co-planar external faces approximately perpendicular to the light beam. The electrodes, signal generator and LED are mounted in an elongated housing having a longitudinal central axis. The electrodes are exposed on an end and the light beam is emitted from the same end and substantially parallel to the central axis. An ON/OFF switch actuates the signal generator and the LED when turned ON. It automatically turns OFF state when released so that the signal generator and the LED are always ON or OFF together.

18 Claims, 1 Drawing Sheet



(19) Europäisches Patentamt
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(11) Numéro de publication: **0 092 015**
A1

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Bulletin 83/43

(84) Etats contractants désignés: **AT BE CH DE FR GB IT LI LU NL SE**

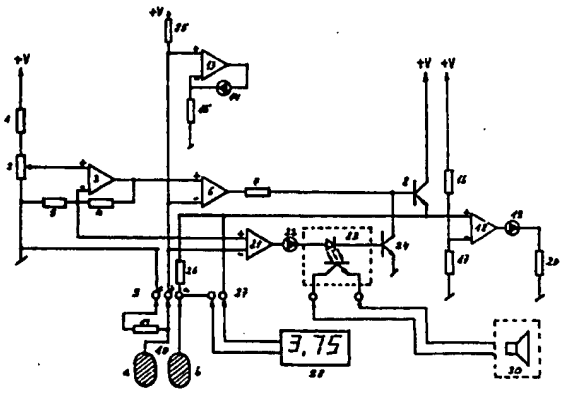
(71) Demandeur: **Brodard, Roland, Avenue des Châtaigniers, 4, CH-1844 Villeneuve (CH)**

(72) Inventeur: **Brodard, Roland, Avenue des Châtaigniers, 4, CH-1844 Villeneuve (CH)**

(74) Mandataire: **Steiner, Martin et al, c/o AMMANN INGENIEURS-CONSEILS EN PROPRIETE INTELLECTUELLE SA BERNE Schwarztorstrasse 31, CH-3001 Bern (CH)**

(54) **Dispositif d'ionisation.**

(57) Le dispositif comprend un générateur de courant (3, 6) réglable par un potentiomètre (2). Une résistance (11) est connectée en série avec une paire d'électrodes amovibles (10a, 10b) dans un circuit de contre-réaction du générateur par l'intermédiaire d'un transistor (8). La résistance (11) est solidaire des électrodes et détermine l'intensité du courant dans celles-ci. Sa valeur est déterminée par la surface des électrodes pour maintenir constante la densité de courant. Une diode LED (14) associée à un circuit (13) donne une indication de la densité de courant dans les électrodes. Une diode LED (19) associée à un comparateur (16, 17, 18) signale une saturation du transistor (8) limitant le courant lorsque la résistance entre les électrodes dépasse une valeur critique. Un comparateur (21) commandant une diode LED (22) de signalisation de sécurité et un second transistor (24) permettent d'interrompre le courant dans les électrodes si, en raison d'une forte résistance entre ces dernières, la tension sur la résistance (11) tombe en dessous de la tension d'entrée du générateur.



EP 0 092 015 A1

DERWENT-ACC-NO: 1983-802599

DERWENT-WEEK: 198344

TITLE: Electrotherapeutic ioniser with adjustable current generator - has indicator and responds automatically to current density for safeguard against burns by sounding alarm

INVENTOR: BROADARD, R

PATENT-ASSIGNEE: BRODARD R[BRODI]

PRIORITY-DATA: 1982EP-0810160 (April 16, 1982)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 92015 A	October 26, 1983	F	017	N/A

DESIGNATED-STATES: BE CH DE FR GB IT LI NL

CITED-DOCUMENTS: CH 385366; FR 2153191 ; FR 2180666 ; GB 2064178 ; US 4141359

INT-CL (IPC): A61N001/30

ABSTRACTED-PUB-NO: EP 92015A

BASIC-ABSTRACT:

The current generator comprises two operational amplifiers (3,6) with negative feedback loops, one purely resistive (4,5) and the other incorporating a saturable transistor (8) which supplies ionising current to body electrodes (10a,10b). A resistance (11) integral with the pair of electrodes determines the current density which is monitored by an operational amplifier (13) controlling a first LED (14).

Saturation of the transistor (8) is indicated by a voltage comparator (18) controlling a second LED (19) which gives warning of abnormal increase of resistance between the electrodes. When the voltage across the measuring resistance (11) falls far below a desired value with risk of burning the patient, a safety comparator (21) lights a third LED (22), operates a LED-phototransistor coupler (23) to sound an alarm (30), and closes a short-circuiting transistor switch (24). The circuit is esp. for use with an electrotherapeutic ioniser.

CHOSEN-DRAWING: Dwg.2/3

TITLE-TERMS: ELECTROTHERAPY IONISE ADJUST CURRENT GENERATOR INDICATE RESPOND AUTOMATIC CURRENT DENSITY SAFEGUARD BURN SOUND ALARM

DERWENT-CLASS: P34 S05

EPI-CODES: S05-A04;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1983-193361

United States Patent [19]

Roberts

[11] **4,124,030**

[45] **Nov. 7, 1978**

[54] **ELECTRO-THERAPEUTIC FARADIC CURRENT GENERATOR**

[76] Inventor: **Wallace A. Roberts, 88 N. Main St., Bellingham, Mass. 02019**

[21] Appl. No.: **756,781**

[22] Filed: **Jan. 5, 1977**

[51] **Int. Cl.²** **A61N 1/36**

[52] **U.S. Cl.** **128/422**

[58] **Field of Search** ..... 128/419 R, 420 A, 420 R, 128/421, 422, 423 R

[56] **References Cited**

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Primary Examiner—Wm. E. Kamm

Attorney, Agent, or Firm—William Nitkin

[57] **ABSTRACT**

Therapeutic faradic current generators are used for stimulation of muscles and nerves of a body. Disclosed is such a generator in one embodiment having a unijunction transistor relaxation oscillator that feeds a Schmitt trigger, the output of which gates a power oscillator. The power oscillator drives a pair of electrodes that are put in contact with the skin.

1 Claim, 1 Drawing Figure